REMARKS

A certified copy of the application has been ordered and will be forwarded as soon as it is received.

The title of the invention has been amended as suggested by the Examiner.

The specification is objected to in that the reference to US patent 5,583,679 on page 3 should apparently be to US patent 5,583,677. This change has been made by the present amendment.

The drawing is objected to in that Fig. 2b shows the angle ϕ between arrows 29 and 41, whereas the direction of 35 would be vertically down, putting the angle below the x axis, not above it.

However, reference numeral 35 in Fig. 2(a) indicates the inactive rubbing direction, which is not relevant to the determination of angle ϕ. Angle ϕ is determined by the active rubbing direction, indicated by arrow 29, and the projection of the director (arrow 37 in Fig. 2(a)) onto the x-y plane, depicted by arrow 41. Thus, Fig. 2(b) is correct.

Claim 6 is rejected under 35 USC 112, first paragraph, in that it is not clear how a plurality of positive birefringent foils can make an element with negative birefringence.

Claim 6 calls for an element comprising a plurality of positive birefringent foils. Claim 6 does not call for the element to have negative birefringence. Claim 5 calls for the element to

have negative birefringence. Claim 6 is not dependent on claim 5, but rather on claim 1.

Moreover, the first paragraph on page 7 of the specification is consistent with claims 5 and 6. It states that the element may comprise a negative birefringent foil having a tilted optical director profile or a plurality of positive birefringent foils, at least one of which has a tilted optical director profile. The statement is also made that an element with negative birefringence can be realized in different manners. However, this was not intended to imply that an element of negative birefringence could be made of a stack of foils having positive birefringence.

Claim 6 is rejected under 35 USC 112, second paragraph, in that it is not clear how the optical director profile of the birefringence-compensating element would be determined when the element is comprised of a plurality of positive birefringent foils at least one of which has a tilted optical director profile. Claim 6 has been cancelled.

Claims 1-7 are rejected under 35 USC 112, second paragraph, in that the language 'comprises a single .. element' is ambiguous.

Claim 1 has been amended to delete the term 'comprises' and to call for the element to be located between the liquid crystal layer and one of the polarizing layers of the image display panel. In view of this amendment, it is felt that claims 1-7 are in conformity with 35 USC 112, second paragraph, and it is urged that

the rejection be withdrawn.

Claims 1, 3, 4, 7 and 8 are rejected under 35 USC 103(a) as being unpatentable over Xu, US patent no. 6,057,901 (herein 'Xu') in view of Abileah et al., US patent no. 5,737,048 (herein 'Abileah').

Xu teaches a liquid crystal display with two tilted retarders and two normal (untilted) retarders. See, for example, col. 5, lines 22-27, and claim 1. In contrast, Applicant claims a system including an image display panel including a single retarder.

Moreover, Xu defines the tilt angle of his pair of tilted retarders in terms of the angle θ, not the angle ϕ.

These angles are defined by Xu in the conventional manner, which is also the manner in which they are defined by Applicant. Thus, the angle θ is defined as the angle formed by the director or optical axis of the retarder with the normal or z axis direction. See, for example, figures 5, 6 and 16 of Xu, and compare figure 2(a) of Applicant.

In contrast to Xu's teaching that each of a pair of tilted retarders has an angle θ between 5 and 15 degrees, Applicant claims a single compensation element having an angle ϕ which is different from 0. This angle ϕ is defined as the angle between the projection of the director in the x-y plane and the active rubbing direction.

In teaching that a pair of tilted retarders is required, Xu actually teaches away from Applicant's invention. Moreover, in teaching a tilt angle θ instead of ϕ, Xu fails to provide sufficient guidance even for a pair of tilted retarders to have the tilt of Applicant's single compensation element.

Abileah teaches a liquid crystal display with a single retardation element (13). The optical axis of element 13 is represented by double arrow R, which lies in the x-y plane (col. 9, line 33) and can be rotated in this plane with respect to a direction Ro. This is different from the invention because in the invention the optical axis (as represented, for example, by arrow 37 in fig. 2(a)) is tilted and thus does not lie in the x-y plane. In Applicant's invention, what lies in the x-y plane is only a projection of the tilted optical axis (represented by 41 in fig. 2(b)).

Accordingly, it is felt that claims 1, 3, 4, 7 and 8 are patentable over the combination of Xu in view of Abileah et al., and it is urged that the rejection be withdrawn.

Claims 1-5, 7 and 8 are rejected under 35 USC 103(a) as being unpatentable over Kawata et al. U.S. patent 5,736,067 (herein ''Kawata et al.'') in view of Abileah et al.

Kawata et al. discloses an LCD including a TNC layer, two optical compensation sheets RF1 and RF2, two polarizing layers PA and PB and a backlight layer BL. The optical compensation sheets

are positioned between the TNC layer and polarizing layers PA and PB (fig. 4).

Thus, Kawata et al. is similar to Xu, in that more than one optical compensation sheet is disclosed in an LCD. Thus, Kawata et al. also teaches away from Applicant's claimed invention. As to Abileah et al., the comments made above apply to this rejection as well.

Accordingly, it is felt that claims 1-5, 7 and 8 are patentable over the combination of Kawata et al. in view of Abileah et al., and it is urged that the rejection be withdrawn.

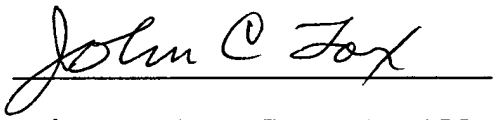
Claims 1, 4 and 6-8 are rejected under 35 USC 102(b) as anticipated by, or in the alternative, under 35 USC 103(a) as unpatentable over Masumoto et al. U.S. patent 5,490,006 (herein ''Masumoto et al.'').

Masumoto et al. teach a liquid crystal light valve apparatus having a pair of non-parallel phase difference plates (for example, 12 and 13 in fig. 7). Thus, like Xu and Kawata et al., Masumoto et al. teach more than one compensation element, and thus teach away from Applicant's invention, in which a single compensation element is claimed.

Accordingly, it is felt that claims 1, 4 and 6-8 are neither anticipated nor rendered obvious by Masumoto et al., and it is urged that the rejection be withdrawn.

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the rejections of record, allow all the pending claims, and find the present Application to be in condition for allowance.

Respectfully submitted,



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203-329-6584

MARKED-UP AMENDED SPECIFICATION

Paragraph beginning at line 14 on page 3:

--It is to be noted that it is known per se from, for example, United States patent 5,583,677 ~~US-A 5,583,679~~ to provide an image display panel with a negative birefringent foil. Here, however, in the case of a single element, this element is positioned at an angle of ϕ=45° so that there is only a general widening which is not optimized for a maximum contrast in the directions from which the main light beams illuminate the image display panel. Moreover, the tolerances are very strict because the optical axis of the foil is positioned at an angle of 45° with respect to the polarizer. --

MARKED-UP AMENDED CLAIMS

1. (Amended) An image projection system comprising an illumination system for supplying an illumination beam, a modulation system for modulating said illumination beam in conformity with image information to be projected, and an optical system for projecting an image, said modulation system comprising at least one liquid crystalline image display panel having a first and a second polarizer between which a layer of TN (twisted nematic) liquid crystalline material is enclosed, characterized in that ~~the image display panel comprises~~ a single birefringence-

compensating element is located between the layer of TN (twisted nematic) liquid crystalline material and one of the two polarizers, which element has a tilted optical director profile whose projection in the plane of the polarizers encloses an angle ϕ different from 0 with the active rubbing direction of the layer.